US005710576A

United States Patent [19]

Nishiyama et al.

[11] **Patent Number:** 5,710,576

[45] **Date of Patent:** Jan. 20, 1998

[54] **PORTABLE ELECTRONIC APPARATUS HAVING PARTIAL DISPLAY FUNCTION**

[75] Inventors: **Toshiro Nishiyama**, Shizuoka; **Yasuhiro Kobayashi**, Tokyo, both of Japan

[73] Assignee: **NEC Corporation**, Tokyo, Japan

[21] Appl. No.: **423,857**

[22] Filed: **Apr. 18, 1995**

[30] **Foreign Application Priority Data**

Apr. 18, 1994 [JP] Japan 6-077724

[51] **Int. Cl.⁶** **G09G 5/00; H04B 1/08; H04M 1/00**

[52] **U.S. Cl.** **345/169**; 345/901; 345/905; 455/348; 379/428

[58] **Field of Search** 345/168, 169, 345/901, 903, 905; 340/500, 531, 539, 311.1; 455/347, 348, 899; 379/419, 422, 428, 434, 440, 435, 433

[56] **References Cited**

FOREIGN PATENT DOCUMENTS

0 414 365	2/1991	European Pat. Off.	.... H04M 1/02
0 427 361	2/1992	European Pat. Off.	.... H04M 1/72
60-230723	11/1985	Japan	.... H04B 1/38
2-112041	9/1990	Japan	.... H04B 7/26
4-111655	4/1992	Japan	.... H04M 1/02
4-273639	9/1992	Japan	.... H04M 1/02
5-030166	2/1993	Japan	.... H04M 1/02
2 266 429	10/1993	United Kingdom	.... H04M 1/02
WO 94/13088	6/1994	WIPO	.... H04M 1/00

Primary Examiner—Michael H. Lee
Assistant Examiner—John W. Miller
Attorney, Agent, or Firm—Young & Thompson

[57] **ABSTRACT**

A portable electronic device has a construction in which a first housing and a second housing are capable of being opened and closed and a display is mounted on an inner side of the first housing. A partial display area of the display is in a visible state even if the second housing is closed, and the full display area becomes in a visible state when the second housing is opened. An open/close state of the housings is detected by an open/close detector mounted on the first housing or the second housing. It may be detected by a user operating a predetermined key. According to the detected open/close state, a displaying area of the information is changed between the partial display area and the full display area. At the open state, the information is displayed in the full display area. At the closed state, the information is displayed in the partial display area.

46 Claims, 5 Drawing Sheets

PORTABLE RADIO APPARATUS